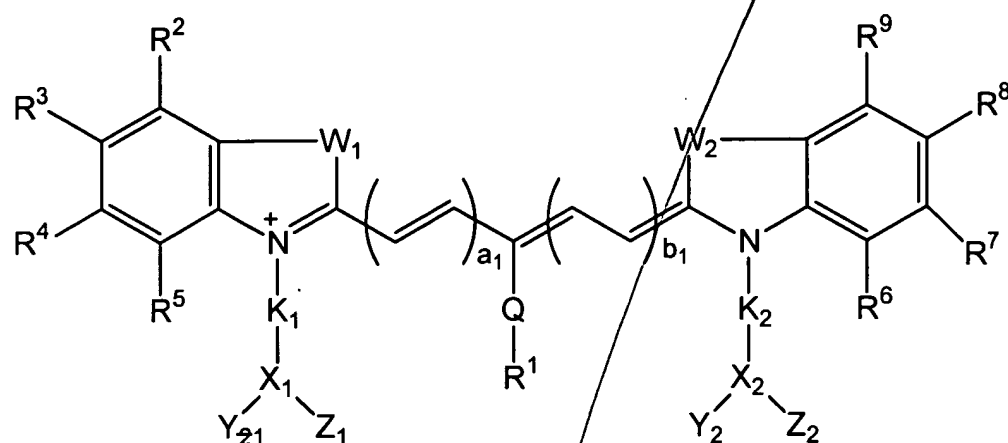


## IN THE CLAIMS

Amend claims 1 and 8 as follows:

1. (CURRENTLY AMENDED) A compound having the cyanine dye bioconjugate formula 1



wherein  $W_1$  and  $W_2$  may be the same or different and are selected from the group consisting of  $-CR^{10}R^{11}$ ,  $-O-$ ,  $-NR^{12}$ ,  $-S-$ , and  $-Se$ ;  $Y_1$ ,  $Y_2$ ,  $Z_1$ , and  $Z_2$  are independently selected from the group consisting of hydrogen, tumor-specific agents, phototherapy agents,  $-CONH-Bm$ ,  $-NHCO-Bm$ ,  $-(CH_2)_a-CONH-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-CONH-Bm$ ,  $-(CH_2)_a-NHCO-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Bm$ ,  $-(CH_2)_a-N(R^{12})-(CH_2)_b-CONH-Bm$ ,  $-(CH_2)_a-N(R^{12})-(CH_2)_c-NHCO-Bm$ ,  $-(CH_2)_a-N(R^{12})-CH_2-(CH_2OCH_2)_b-CH_2-CONH-Bm$ ,  $-(CH_2)_a-N(R^{12})-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-N(R^{12})-(CH_2)_a-$

$\text{CONH-Bm}$ ,  $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{N}(\text{R}^{12})-(\text{CH}_2)_a-\text{NHCO-Bm}$ ,  $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{N}(\text{R}^{12})-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_d-\text{CONH-Bm}$ ,  $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{N}(\text{R}^{12})-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_d-\text{NHCO-Bm}$ ,  $-\text{CONH-Dm}$ ,  $-\text{NHCO-Dm}$ ,  $-(\text{CH}_2)_a-\text{CONH-Dm}$ ,  $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{CONH-Dm}$ ,  $-(\text{CH}_2)_a-\text{NHCO-Dm}$ ,  $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{NHCO-Dm}$ ,  $-(\text{CH}_2)_a-\text{N}(\text{R}^{12})-(\text{CH}_2)_b-\text{CONH-Dm}$ ,  $-(\text{CH}_2)_a-\text{N}(\text{R}^{12})-(\text{CH}_2)_c-\text{NHCO-Dm}$ ,  $-(\text{CH}_2)_a-\text{N}(\text{R}^{12})-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{CONH-Dm}$ ,  $-(\text{CH}_2)_a-\text{N}(\text{R}^{12})-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{NHCO-Dm}$ ,  $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{N}(\text{R}^{12})-(\text{CH}_2)_a-\text{CONH-Dm}$ ,  $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{N}(\text{R}^{12})-(\text{CH}_2)_a-\text{NHCO-Dm}$ ,  $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{N}(\text{R}^{12})-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_d-\text{CONH-Dm}$ ,  $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{N}(\text{R}^{12})-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_d-\text{NHCO-Dm}$ ,  $-(\text{CH}_2)_a-\text{N}(\text{R}^{12})\text{R}^{13}$ , and  $-\text{CH}_2(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2\text{N}(\text{R}^{12})\text{R}^{13}$ ;  $\text{K}_1$  and  $\text{K}_2$  are independently selected from the group consisting of  $\text{C}_1\text{-C}_{30}$  alkyl,  $\text{C}_5\text{-C}_{30}$  aryl,  $\text{C}_1\text{-C}_{30}$  alkoxy,  $\text{C}_1\text{-C}_{30}$  polyalkoxyalkyl,  $\text{C}_1\text{-C}_{30}$  polyhydroxyalkyl,  $\text{C}_5\text{-C}_{30}$  polyhydroxyaryl,  $\text{C}_1\text{-C}_{30}$  aminoalkyl, saccharides, peptides,  $-\text{CH}_2(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-$ ,  $-(\text{CH}_2)_a-\text{CO}-$ ,  $-(\text{CH}_2)_a-\text{CONH}-$ ,  $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{CONH}-$ ,  $-(\text{CH}_2)_a-\text{NHCO}-$ ,  $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{NHCO}-$ ,  $-(\text{CH}_2)_a-\text{O}-$ , and  $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CO}-$ ;  $\text{X}_1$  and  $\text{X}_2$  are single bonds, or are independently selected from the group consisting of nitrogen, saccharides,  $-\text{CR}^{14}$ ,  $-\text{CR}^{14}\text{R}^{15}$ ,  $-\text{NR}^{16}\text{R}^{17}$ ;  $\text{C}_5\text{-C}_{30}$  aryl;  $\text{Q}$  is a single bond or is selected from the group consisting of  $-\text{O}-$ ,  $-\text{S}-$ ,  $-\text{Se}-$ , and  $-\text{NR}^{18}$ ;  $a_1$  and  $b_1$  independently vary from 0 to 5;  $\text{R}^1$  to  $\text{R}^{13}$ , and  $\text{R}^{18}$  are independently selected from the group consisting of hydrogen,  $\text{C}_1\text{-C}_{10}$  alkyl,  $\text{C}_5\text{-C}_{20}$  aryl,  $\text{C}_1\text{-C}_{10}$  alkoxy,  $\text{C}_1\text{-C}_{10}$  polyalkoxyalkyl,  $\text{C}_1\text{-C}_{20}$  polyhydroxyalkyl,  $\text{C}_5\text{-C}_{20}$  polyhydroxyaryl,  $\text{C}_1\text{-C}_{10}$  aminoalkyl, cyano, nitro, halogens, saccharides, peptides,  $-\text{CH}_2(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{OH}$ ,  $-(\text{CH}_2)_a-\text{CO}_2\text{H}$ ,  $-(\text{CH}_2)_a-\text{CONH-Bm}$ ,  $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{CONH-Bm}$ ,  $-(\text{CH}_2)_a-\text{NHCO-Bm}$ ,  $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{NHCO-Bm}$ ,  $-(\text{CH}_2)_a-\text{OH}$  and  $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CO}_2\text{H}$ ;  $\text{R}^{14}$  to  $\text{R}^{17}$  are independently selected from the group

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consisting of hydrogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>5</sub>-C<sub>20</sub> aryl, C<sub>1</sub>-C<sub>10</sub> alkoxy, C<sub>1</sub>-C<sub>10</sub> polyalkoxyalkyl, C<sub>1</sub>-C<sub>20</sub> polyhydroxyalkyl, C<sub>5</sub>-C<sub>20</sub> polyhydroxyaryl, C<sub>1</sub>-C<sub>10</sub> aminoalkyl, saccharides, peptides, -CH<sub>2</sub>(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-, -(CH<sub>2</sub>)<sub>a</sub>-CO-, -(CH<sub>2</sub>)<sub>a</sub>-CONH-, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-CONH-, -(CH<sub>2</sub>)<sub>a</sub>-NHCO-, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-NHCO-, -(CH<sub>2</sub>)<sub>a</sub>-O-, and -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CO-; Bm and Dm are independently selected from the group consisting of bioactive peptides, proteins, cells, antibodies, antibody fragments, saccharides, glycopeptides, peptidomimetics, drugs, drug mimics, hormones, metal chelating agents, radioactive or nonradioactive metal complexes, echogenic agents, photoactive molecules, and phototherapy agents; a and c independently vary from 1 to 20; b and d independently vary from 1 to 100.

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2. (ORIGINAL) The compound of claim 1 wherein W<sub>1</sub> and W<sub>2</sub> are independently selected from the group consisting of -C(CH<sub>3</sub>)<sub>2</sub>-, -C((CH<sub>2</sub>)<sub>a</sub>OH)CH<sub>3</sub>-, -C((CH<sub>2</sub>)<sub>a</sub>OH)<sub>2</sub>-, -C((CH<sub>2</sub>)<sub>a</sub>CO<sub>2</sub>H)CH<sub>3</sub>-, -C((CH<sub>2</sub>)<sub>a</sub>CO<sub>2</sub>H)<sub>2</sub>-, -C((CH<sub>2</sub>)<sub>a</sub>NH<sub>2</sub>)CH<sub>3</sub>-, -C((CH<sub>2</sub>)<sub>a</sub>NH<sub>2</sub>)<sub>2</sub>-, -C((CH<sub>2</sub>)<sub>a</sub>NR<sup>12</sup>R<sup>13</sup>)<sub>2</sub>-, -NR<sup>12</sup>-, and -S-; Y<sub>1</sub> and Y<sub>2</sub> are selected from the group consisting of hydrogen, tumor-specific agents, -CONH-Bm, -NHCO-Bm, -(CH<sub>2</sub>)<sub>a</sub>-CONH-Bm, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-CONH-Bm, -(CH<sub>2</sub>)<sub>a</sub>-NHCO-Bm, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-NHCO-Bm, -(CH<sub>2</sub>)<sub>a</sub>-NR<sup>12</sup>R<sup>13</sup>-, and -CH<sub>2</sub>(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>NR<sup>12</sup>R<sup>13</sup>; Z<sub>1</sub> and Z<sub>2</sub> are independently selected from the group consisting of hydrogen, phototherapy agents, -CONH-Dm, -NHCO-Dm, -(CH<sub>2</sub>)<sub>a</sub>-CONH-Dm, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-CONH-Dm, -(CH<sub>2</sub>)<sub>a</sub>-NHCO-Dm, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-NHCO-Dm, -(CH<sub>2</sub>)<sub>a</sub>-NR<sup>12</sup>R<sup>13</sup>-, and -CH<sub>2</sub>(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>NR<sup>12</sup>R<sup>13</sup>; K<sub>1</sub> and K<sub>2</sub> are independently selected from the group consisting of C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>5</sub>-C<sub>20</sub> aryl, C<sub>1</sub>-C<sub>20</sub> alkoxy, C<sub>1</sub>-C<sub>20</sub> aminoalkyl, -(CH<sub>2</sub>)<sub>a</sub>-CO-, -(CH<sub>2</sub>)<sub>a</sub>-CONH-, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-

CH<sub>2</sub>-CONH-, -(CH<sub>2</sub>)<sub>a</sub>-NHCO-, -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CH<sub>2</sub>-NHCO-, and -CH<sub>2</sub>-(CH<sub>2</sub>OCH<sub>2</sub>)<sub>b</sub>-CO-; X<sub>1</sub> and X<sub>2</sub> are single bonds, or are independently selected from the group consisting of nitrogen, -CR<sup>14</sup>-, -CR<sup>14</sup>R<sup>15</sup>, and -NR<sup>16</sup>R<sup>17</sup>; Q is a single bond or is selected from the group consisting of -O-, -S-, and -NR<sup>18</sup>; a<sub>1</sub> and b<sub>1</sub> independently vary from 0 to 3; Bm is selected from the group consisting of bioactive peptides containing 2 to 30 amino acid units, proteins, antibody fragments, mono- and oligosaccharides; Dm is selected from the group consisting of photosensitizers, photoactive molecules, and phototherapy agents; a and c independently vary from 1 to 10; b and d independently vary from 1 to 30.

3. (ORIGINAL) The compound of claim 2 wherein each W<sub>1</sub>, and W<sub>2</sub> is -C(CH<sub>3</sub>)<sub>2</sub>; each K<sub>1</sub> and K<sub>2</sub> is -(CH<sub>2</sub>)<sub>4</sub>CO-; each Q, X<sub>1</sub> and X<sub>2</sub> is a single bond; each R<sup>1</sup> to R<sup>9</sup>, Y<sub>1</sub> and Z<sub>1</sub> is H; Y<sub>2</sub> is a tumor-specific agent; and Z<sub>2</sub> is a phototherapy agent.

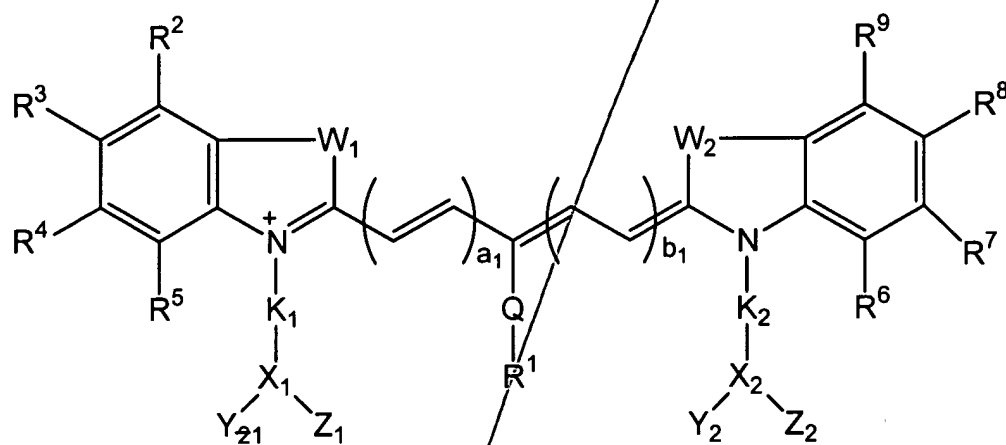
4. (ORIGINAL) The compound according to claim 3 wherein the said tumor-specific agent is a bioactive peptide containing 2 to 30 amino acid units.

5. (ORIGINAL) The compound according to claim 4 wherein the said tumor-specific agent is octreotate and bombesin (7-14).

6. (ORIGINAL) The compound according to claim 3 wherein the said phototherapy agent is a photosensitizer.

7. (ORIGINAL) The compound according to claim 6 wherein the said photosensitizer is 2-[1-hexyloxyethyl]-2-devinylpyropheophorbide-a.

8. (CURRENTLY AMENDED) A method for performing a diagnostic and therapeutic procedure comprising administering to an individual an effective amount of the composition of cyanine dye bioconjugate of Formula 1



wherein  $W_1$  and  $W_2$  may be the same or different and are selected from the group consisting of  $-CR^{10}R^{11}$ ,  $-O-$ ,  $-NR^{12}$ ,  $-S-$ , and  $-Se$ ;  $Y_1$ ,  $Y_2$ ,  $Z_1$ , and  $Z_2$  are independently selected from the group consisting of hydrogen, tumor-specific agents, phototherapy agents,  $-CONH-Bm$ ,  $-NHCO-Bm$ ,  $-(CH_2)_a-CONH-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-CONH-Bm$ ,  $-(CH_2)_a-NHCO-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Bm$ ,  $-(CH_2)_a-N(R^{12})-(CH_2)_b-CONH-Bm$ ,

$-(CH_2)_a-N(R^{12})-(CH_2)_c-NHCO-Bm$ ,  $-(CH_2)_a-N(R^{12})-CH_2-(CH_2OCH_2)_b-CH_2-CONH-Bm$ ,  
 $-(CH_2)_a-N(R^{12})-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-N(R^{12})-(CH_2)_a-$   
 $CONH-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-N(R^{12})-(CH_2)_a-NHCO-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-$   
 $N(R^{12})-CH_2-(CH_2OCH_2)_d-CONH-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-N(R^{12})-CH_2-(CH_2OCH_2)_d-$   
 $NHCO-Bm$ ,  $-CONH-Dm$ ,  $-NHCO-Dm$ ,  $-(CH_2)_a-CONH-Dm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-$   
 $CONH-Dm$ ,  $-(CH_2)_a-NHCO-Dm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Dm$ ,  $-(CH_2)_a-N(R^{12})-$   
 $(CH_2)_b-CONH-Dm$ ,  $-(CH_2)_a-N(R^{12})-(CH_2)_c-NHCO-Dm$ ,  $-(CH_2)_a-N(R^{12})-CH_2-(CH_2OCH_2)_b-$   
 $CH_2-CONH-Dm$ ,  $-(CH_2)_a-N(R^{12})-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Dm$ ,  $-CH_2-(CH_2OCH_2)_b-$   
 $CH_2-N(R^{12})-(CH_2)_a-CONH-Dm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-N(R^{12})-(CH_2)_a-NHCO-Dm$ ,  $-CH_2-$   
 $(CH_2OCH_2)_b-CH_2-N(R^{12})-CH_2-(CH_2OCH_2)_d-CONH-Dm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-N(R^{12})-$   
 $CH_2-(CH_2OCH_2)_d-NHCO-Dm$ ,  $-(CH_2)_a-N R^{12}R^{13}$ , and  $-CH_2(CH_2OCH_2)_b-CH_2N R^{12}R^{13}$ ;  $K_1$   
and  $K_2$  are independently selected from the group consisting of  $C_1-C_{30}$  alkyl,  $C_5-C_{30}$  aryl,  
 $C_1-C_{30}$  alkoxy,  $C_1-C_{30}$  polyalkoxyalkyl,  $C_1-C_{30}$  polyhydroxyalkyl,  $C_5-C_{30}$  polyhydroxyaryl,  
 $C_1-C_{30}$  aminoalkyl, saccharides, peptides,  $-CH_2(CH_2OCH_2)_b-CH_2-$ ,  $-(CH_2)_a-CO-$ ,  $-(CH_2)_a-$   
 $CONH$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-CONH-$ ,  $-(CH_2)_a-NHCO-$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-$ ,  
 $-(CH_2)_a-O-$ , and  $-CH_2-(CH_2OCH_2)_b-CO-$ ;  $X_1$  and  $X_2$  are single bonds, or are  
independently selected from the group consisting of nitrogen, saccharides,  $-CR^{14}-$ ,  
 $-CR^{14}R^{15}$ ,  $-NR^{16}R^{17}$ ;  $C_5-C_{30}$  aryl;  $Q$  is a single bond or is selected from the group  
consisting of  $-O-$ ,  $-S-$ ,  $-Se-$ , and  $-NR^{18}$ ;  $a_1$  and  $b_1$  independently vary from 0 to 5;  $R^1$  to  
 $R^{13}$ , and  $R^{18}$  are independently selected from the group consisting of hydrogen,  $C_1-C_{10}$   
alkyl,  $C_5-C_{20}$  aryl,  $C_1-C_{10}$  alkoxy,  $C_1-C_{10}$  polyalkoxyalkyl,  $C_1-C_{20}$  polyhydroxyalkyl,  $C_5-C_{20}$   
polyhydroxyaryl,  $C_1-C_{10}$  aminoalkyl, cyano, nitro, halogens, saccharide, peptides,  
 $-CH_2(CH_2OCH_2)_b-CH_2-OH$ ,  $-(CH_2)_a-CO_2H$ ,  $-(CH_2)_a-CONH-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-$

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CONH-Bm,  $-(CH_2)_a-NHCO-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Bm$ ,  $-(CH_2)_a-OH$  and  $-CH_2-(CH_2OCH_2)_b-CO_2H$ ;  $R^{14}$  to  $R^{17}$  are independently selected from the group consisting of hydrogen,  $C_1-C_{10}$  alkyl,  $C_5-C_{20}$  aryl,  $C_1-C_{10}$  alkoxy,  $C_1-C_{10}$  polyalkoxyalkyl,  $C_1-C_{20}$  polyhydroxyalkyl,  $C_5-C_{20}$  polyhydroxyaryl,  $C_1-C_{10}$  aminoalkyl, saccharides, peptides,  $-CH_2(CH_2OCH_2)_b-CH_2-$ ,  $-(CH_2)_a-CO-$ ,  $-(CH_2)_a-CONH-$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-CONH-$ ,  $-(CH_2)_a-NHCO-$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-$ ,  $-(CH_2)_a-O-$ , and  $-CH_2-(CH_2OCH_2)_b-CO-$ ; Bm and Dm are independently selected from the group consisting of bioactive peptides, proteins, cells, antibodies, antibody fragments, saccharides, glycopeptides, peptidomimetics, drugs, drug mimics, hormones, metal chelating agents, radioactive or nonradioactive metal complexes, echogenic agents, photoactive molecules, and phototherapy agents; a and c independently vary from 1 to 20; b and d independently vary from 1 to 100; and thereafter performing said procedure.

9. (ORIGINAL) The method for performing the diagnostic and therapeutic procedure of claim 8 comprising administering to an individual an effective amount of the composition of cyanine dye bioconjugate wherein  $W_1$  and  $W_2$  are independently selected from the group consisting of  $-C(CH_3)_2$ ,  $-C((CH_2)_aOH)CH_3$ ,  $-C((CH_2)_aOH)_2$ ,  $-C((CH_2)_aCO_2H)CH_3$ ,  $-C((CH_2)_aCO_2H)_2$ ,  $-C((CH_2)_aNH_2)CH_3$ ,  $-C((CH_2)_aNH_2)_2$ ,  $-C((CH_2)_aNR^{12}R^{13})_2$ ,  $-NR^{12}$ , and  $-S-$ ;  $Y_1$  and  $Y_2$  are selected from the group consisting of hydrogen, tumor-specific agents,  $-CONH-Bm$ ,  $-NHCO-Bm$ ,  $-(CH_2)_a-CONH-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-CONH-Bm$ ,  $-(CH_2)_a-NHCO-Bm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Bm$ ,  $-(CH_2)_a-NR^{12}R^{13}$ , and  $-CH_2(CH_2OCH_2)_b-CH_2NR^{12}R^{13}$ ;  $Z_1$  and  $Z_2$  are independently

selected from the group consisting of hydrogen, phototherapy agents, -CONH-Dm, -NHCO-Dm,  $-(CH_2)_a-CONH-Dm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-CONH-Dm$ ,  $-(CH_2)_a-NHCO-Dm$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Dm$ ,  $-(CH_2)_a-NR^{12}R^{13}$ , and  $-CH_2(CH_2OCH_2)_b-CH_2NR^{12}R^{13}$ ;  $K_1$  and  $K_2$  are independently selected from the group consisting of  $C_1-C_{10}$  alkyl,  $C_5-C_{20}$  aryl,  $C_1-C_{20}$  alkoxy,  $C_1-C_{20}$  aminoalkyl,  $-(CH_2)_a-CO-$ ,  $-(CH_2)_a-CONH-$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-CONH-$ ,  $-(CH_2)_a-NHCO-$ ,  $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-$ , and  $-CH_2-(CH_2OCH_2)_b-CO-$ ;  $X_1$  and  $X_2$  are single bonds, or are independently selected from the group consisting of nitrogen,  $-CR^{14}-$ ,  $-CR^{14}R^{15}$ , and  $-NR^{16}R^{17}$ ;  $Q$  is a single bond or is selected from the group consisting of  $-O-$ ,  $-S-$ , and  $-NR^{18}$ ;  $a_1$  and  $b_1$  independently vary from 0 to 3;  $Bm$  is selected from the group consisting of bioactive peptides containing 2 to 30 amino acid units, proteins, antibody fragments, mono- and oligosaccharides;  $Dm$  is selected from the group consisting of photosensitizers, photoactive molecules, and phototherapy agents;  $a$  and  $c$  independently vary from 1 to 10;  $b$  and  $d$  independently vary from 1 to 30.

10. (ORIGINAL) The method for performing the diagnostic and therapeutic procedure of claim 9 comprising administering to an individual an effective amount of the composition of cyanine dye bioconjugate wherein each  $W_1$  and  $W_2$  is  $-C(CH_3)_2$ ; each  $K_1$  and  $K_2$  is  $-(CH_2)_4CO-$ ; each  $Q$ ,  $X_1$  and  $X_2$  is a single bond; each  $R^1$  to  $R^9$ ,  $Y_1$  and  $Z_1$  is  $H$ ;  $Y_2$  is a tumor-specific agent; and  $Z_2$  is a phototherapy agent.



11. (ORIGINAL) The method for performing the diagnostic and therapeutic procedure of claim 10 comprising administering to an individual an effective amount of the composition of cyanine dye bioconjugate wherein the said tumor-specific agent is a bioactive peptide containing 2 to 30 amino acid units.

12. (ORIGINAL) The method for performing the diagnostic and therapeutic procedure of claim 11 comprising administering to an individual an effective amount of the composition of cyanine dye bioconjugate wherein the said tumor-specific agent is octreotate and bombesin (7-14).

13. (ORIGINAL) The method for performing the diagnostic and therapeutic procedure of claim 10 comprising administering to an individual an effective amount of the composition of cyanine dye bioconjugate wherein the said phototherapy agent is a photosensitizer.

14. (ORIGINAL) The method for performing the diagnostic and therapeutic procedure of claim 13 comprising administering to an individual an effective amount of the composition of cyanine dye bioconjugate wherein the said photosensitizer is 2-[1-hexyloxyethyl]-2-devinylpyropheophorbide-a.

15. (ORIGINAL) The method of claim 8 wherein said procedure utilizes light of wavelength in the region of 300-1300 nm.

16. (ORIGINAL) The method of claim 8 wherein the diagnostic procedure is optical tomography.

17. (ORIGINAL) The method of claim 8 wherein said diagnostic procedure is fluorescence endoscopy.

18. (ORIGINAL) The method of claim 8 wherein said procedure further comprises a step of imaging and therapy wherein said imaging and therapy is selected from the group consisting of absorption, light scattering, photoacoustic and sonofluorescence technique.

19. (ORIGINAL) The method of claim 8 wherein said procedure is for diagnosing and treating atherosclerotic plaques and blood clots.

20. (ORIGINAL) The method of claim 8 wherein said procedure comprises administering localized therapy.

21. (ORIGINAL) The method of claim 8 wherein said therapeutic procedure comprises photodynamic therapy.

22. (ORIGINAL) The method of claim 8 wherein said therapeutic procedure comprises laser assisted guided surgery (LAGS) for the detection and treatment of micrometastases.